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JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

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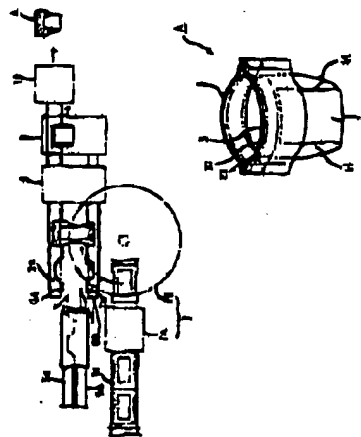
(54) MANUFACTURE OF BRIEFS TYPE DISPOSABLE
DIAPER

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(57) Abstract:

PURPOSE: To reduce costs by enabling an automatic large-scale production method by forming a back body wrapping part and front body wrapping sections to place a diaper main body thereon orthogonally and to bond it thereto.

CONSTITUTION: Optional stock is selected for a back body wrapping section and front body wrapping sections (2 and 3) independently of diaper body 1. In other words, the diaper body 1 is relayed to a turning transfer device 7B behind a suction conveying device 7A and the diaper body 1 is turned by 90° to be supplied to a specified position between belt bodies 2a and 3a of both body wrapping sections perpendicular thereto. Then the diaper body is conveyed to a bonding means 8 to bond it integrally with the belt bodies 2a and 3a of both body wrapping sections. Thereafter, the assembly is conveyed to a folding means 9 to be folded double and side ends of the belt bodies 2a and 2b of both the body wrapping sections are cut while being bonded by a bonding/cutting means 10.



*full translation attached
No equivs. outside JPO*

Translation of
Japanese laid open patent application number H3-176053

Japanese Patent Office (J P)
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Title of the invention Brief-type disposable diaper production
method

Patent application number H1-315742
Application date December 4, 1989

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Specification

1. Title of the invention

Brief-type disposable diaper production method

2. Scope of the patent claim

A brief-type disposable diaper production method involving

a process whereby a water-absorbent material is inserted between an outer sheet and an inner sheet to form a diaper body;

a process whereby a front waistband and a continuous back waistband having an elastic member at least at the side is formed;

a process whereby the diaper body is overlapped and adhered to both waistbands in the transverse direction;

a process whereby the diaper body is folded double and both waistbands are brought into contact; and

a process whereby the contacted waistbands are cut to prescribed dimensions and the regions near the cuts are adhered to integrate

the waist parts at the edge portions

to produce a brief-type disposable diaper from a diaper body and a single waistband.

3. Detailed description of the invention

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Field of industrial use

The present invention relates to a brief-type disposable diaper production method.

Prior art

Known technology relating to this type of brief-type disposable diaper production method is disclosed in Japanese Unexamined Patent Application Number S57-77304: "Diaper-brief and Production Method Therefor".

Problems to be overcome by the invention

The abovementioned technology is disadvantageous in that as there is a cut-out portion in order to form an opening for the wearer to insert his/her legs, it is necessary to add a process for forming the cut-out portion, which raises production costs.

Means of overcoming the abovementioned problem

The present invention overcomes the abovementioned problem of the prior art and allows the production of brief-type disposable diapers by an automated large-scale production method involving a process whereby a diaper body is formed; a process whereby a back waist part and front waist part are formed; a process whereby the diaper body is overlapped and adhered to both waist parts in the transverse direction; and a process whereby the diaper body is adhered and integrated.

Embodiment

The present invention is described in detail based on the embodiment shown in the following drawings.

Figures 4 through 6 show an example of a brief-type disposable diaper produced according to the present invention: 1

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represents the diaper body, formed by inserting absorbent material 13 between outer sheet (for example, a water-impermeable P.E. sheet) 11 and inner sheet (for example, water permeable nonwoven cloth) 12.

2 is the back waist part and 3 is the front waist part, and the material for both waist parts 2 and 3 may be selected independently from the material for diaper body 1, although in this embodiment, the same material is used; the double layer having P.E. sheets 21 and 31 as the outside and nonwoven cloth 22 and 32 as the inside is formed, an elastic member sheet (for example, a polyurethane sheet) 23 and 33 is inserted into part thereof, so that at least the upper edge is expandable. It should be noted that it is also possible to have a single layer elastic sheet, to form a completely expandable construction. It should be noted that as waist parts 2 and 3 are preferably of an air-permeable material, it is desirable either to take the nonwoven cloth and elastic sheet, and exclude the P.E. sheet, or, when a P.E. sheet is used, to puncture a plurality of small holes therein. It is also possible to totally or partially affix the elastic member (rubber thread, rubber tape or the like) to a sheet of suitable material, to form an elastic sheet.

Moreover, the hole parts H for the insertion of the wearer's legs are dictated by the width and shape of the diaper body 1 and the width and shape of waist parts 2 and 3, and generally, the shape is such that the holes are toward the front side.

The brief-type disposable diaper production method of the

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present invention will be described below with reference to Figures 1 through 3.

Figure a shows the diaper body 1 production process: absorbent body 13 is placed on outer sheet (back sheet) 11 supplied from outer sheet roller 11a, then inner sheet (top sheet) 12, supplied from inner sheet roller 12a, is supplied thereon, to achieve a sandwich-like insertion of absorbent body 1 between outer sheet 11 and inner sheet 12; then this is transported by the first conveyor device 4 to adhering-cutting device 15, and the circumference is firmly adhered by adhering-cutting device 15, or adhered with adhesive, then cut to the required shape. It should be noted that this process is the same as known diaper production processes, and it is possible to employ a conventional production line for disposable diapers.

It should be noted that the adhering-cutting device 15 comprises two stages: first unit 15a and second unit 15b. In first unit 15a, only adhesion and the cutting of cut-away parts P proceeds, to continuously form diaper body 1, then diaper body band 1a is transported to the next process, and may be cut crosswise to the required dimensions by second unit 15b when in the vicinity of the waistbands 2,3-adhesion process.

Moreover, as there are no cut-away parts P when diaper body 1 is long, it is also possible to achieve the aims of the present invention by only adhering in first unit 15a, then cutting in second unit 15b.

There are various possible shapes for the cut-away parts P, and the shape can be selected according to the shape of the

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waistband 2,3 and the desired shape of hole parts H.

Figure 1(b) shows a waistband 2, 3 production line: elastic member sheet 23a, supplied by elastic member sheet roller 14, is cut along a continuous S-shaped cutting line in the central portion by cutting device 24 to form a pair of bands, back waistband 2a and front waistband 3a.

It should be noted that in the case of the multilayer constructions shown in Figure 3 (outer sheet (P.E. sheet) and elastic member sheet, inner sheet (nonwoven cloth) and elastic member sheet, or outer sheet and elastic member sheet-inner sheet), if elastic member sheet 23a is a band of the same width, and only part of sheet 21a, 22a is adhered, the elastic member sheet can be used effectively without cut-away parts, and holes of the desired shape can be found by selecting a suitable shape for waist part 2,3.

Figure 1(c) integrates the diaper body 1 process of Figure 1(a) and the waistband 2a, 3a process of Figure 1(b), to show the brief-type disposable diaper-forming process: the second conveying device 5a, 5b for waistbands 2a, 3a extends to become the third conveying device 6A and the force conveying device 6B.

Diaper body supply means 7 comprises suction conveying device 7A and rotation conveying device 7B, such that suction conveying device 7A for conveying the diaper body 1 that has been cut to the required dimensions is provided at the end of the first conveying device 4, after which diaper body 1 proceeds onto rotation conveying device 7B, then rotation conveying device 7B rotates the diaper body 1 through 90°, to supply diaper body 1

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transversely to a prescribed position on waistband 2a, 3a.

It should be noted that rotation conveying device 7B receives the diaper body 1 on the conveying surface of suction conveying device 7A then supplies it by rotating 1/4 of a rotation while suction continues, then rotating the diaper body 1 that is between third conveying device 6A and fourth conveying 6B through 90°, and diaper body supply means 7 can achieve the aim by means of a suitable conveying means as follows: the adsorption surface of the diaper body is rotated through 90° according to the rotation of a suction rotation drum provided so as to be continuous with suction conveying device 7A, then the diaper body proceeds to a suction conveyor belt, whereupon it is conveyed in a transverse direction with respect to the conveying devices, thereby allowing diaper body 1 to be supplied between waistbands 2 and 3.

Diaper body 1 is then conveyed to adhesion means 8 and adhered to waistbands 2a, 3a by a suitable adhesion means such as an adhesive or heat seal.

It is then conveyed to folding means 9, and folded double by said folding means 9 to superimpose front waistband 2a and back waistband 3a.

The sides of the superimposed waistbands 2a and 2b are adhered and cut to the required shape by adhering-cutting means 10, to yield brief-type disposable diaper A.

Advantages of the invention

The present invention yields a brief-type disposable diaper by adhering and integrating a pair of waistbands and a

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diaper body and cutting to the required dimensions and so conventional diaper production lines can be used for the diaper body, the waist parts are supplied as bands and automated mass production is possible due to a belt conveying device, so the brief-type disposable diapers can be effectively produced at extremely low cost.

4. Brief description of the drawings

Figure 1 is an explanatory diagram for the brief-type disposable diaper production method of the present invention: Figure (a) shows the diaper body production process, and Figure (b) shows the waistband-integrating process.

Figure 2 is a diagram of the diaper body, and Figure 3 shows the front waist part and back waist part.

Figure 4 shows an oblique view of a brief-type disposable diaper produced according to the present invention, Figure 5 is plane view and Figure 6 is a cross-sectional view of the diaper body.

- | | |
|----|--------------------------|
| 1 | Diaper body |
| 2 | Back waist part |
| 3 | Front waist part |
| 7 | Diaper body supply means |
| 8 | Adhesion means |
| 9 | Folding means |
| 10 | Cutting means |

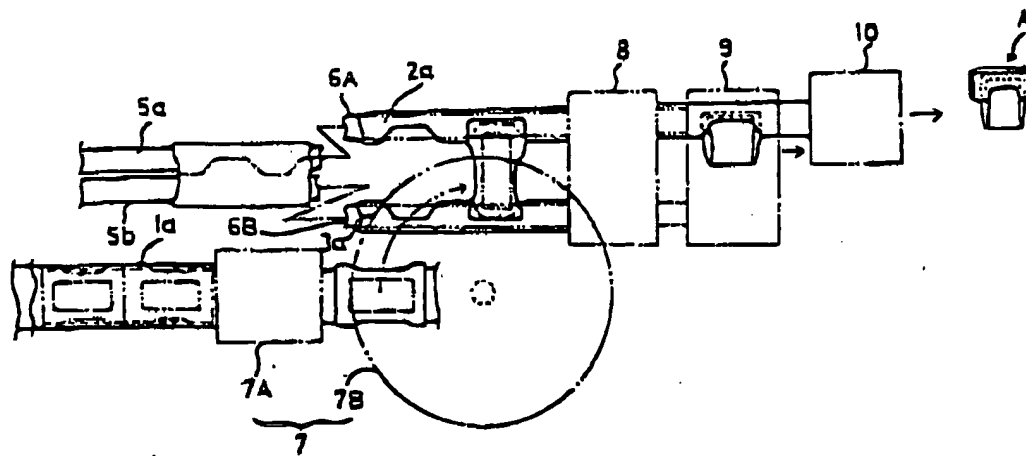
Applicant K.K. Zuiko

Patent attorney

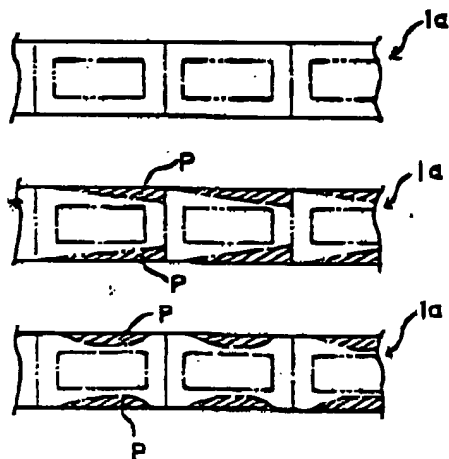
S. Okumura

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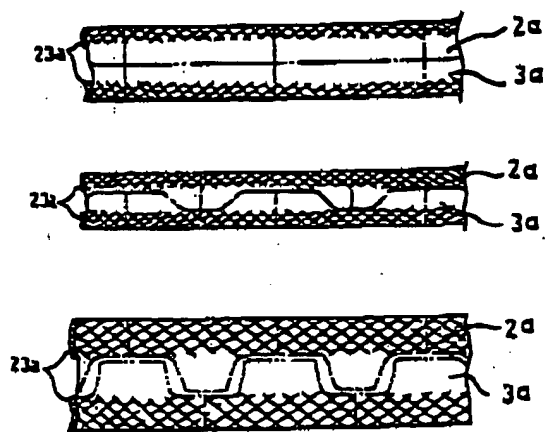
第1図(C)



第2図

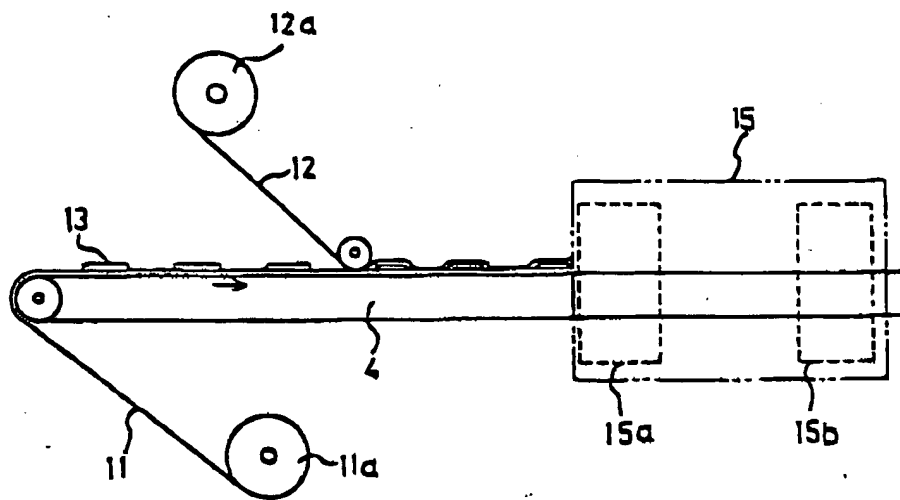


第3図

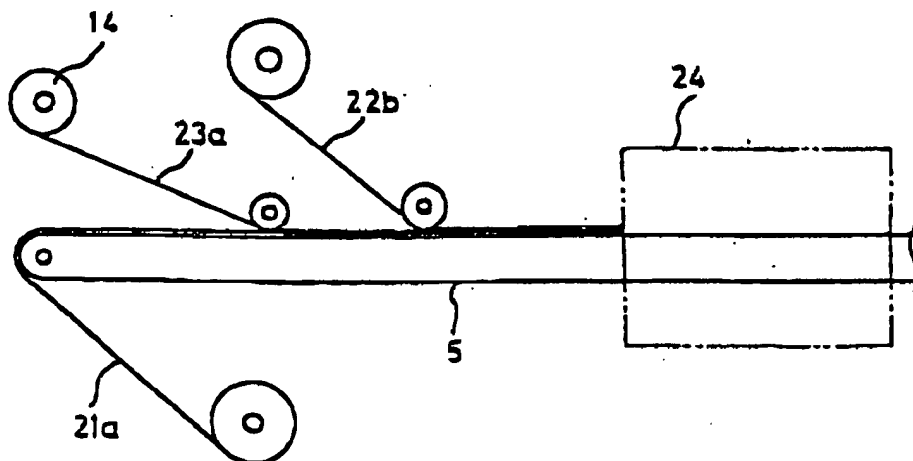


特開平3-17053 (4)

第1図 (a)

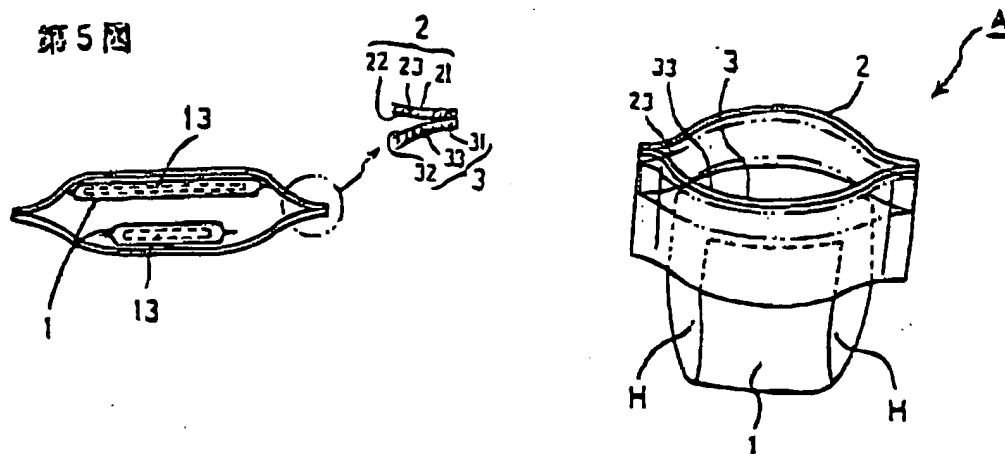


第1図 (b)

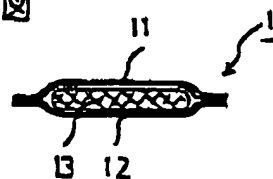


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第4図



第6図



特開平3-176053(3)

ブリーフ片に包んでおむつとする工程を示し、第1図は開閉部材2a・3aの第2製造工程3a・3bを施して第3製造工程6aおよび第4製造工程6bとする。

第1製造工程4の枠組板に、所定寸法に切開されたおむつ本体1を製造するための吸引製造装置7Aを設け、その下方の吸引部3aにおむつ本体1を引寄せ、吸引部3aでおむつ本体1を90度回転させて開閉部材2a・3a間の所定位置に位置させておむつ本体1を供給して、おむつ本体供給手段7を用成する。

なお、吸引部3aは吸引製造装置7Aの製造部上のおむつ本体1を受け取り、吸引しつつ1/4回転して第3製造工程6aと第4製造工程6bとの間におむつ本体1を90度回転させて供給するものであるが、吸引製造装置7Aに連続して吸引部材アームを設けてドラムの回転に伴っておむつ本体の供給部を回転させて90度回転させたのち吸引部3aに引寄せ吸引部3aとて第3製造工程と第4製造工程に移送しても、本発明のおむつ

1を開閉部材2・3間に供給できるものであり、おむつ本体供給手段7は製造の移送手段により回転を達成することができる。

次に開閉手段8へ移送した後、ヒートシール、接着剤等の接着の接着手段により、本発明のおむつ1を開閉部材2a・3aと接着して一体化する。

そのうち、おむつ手段9へ移送し、おむつ手段9により二折込に折曲げて開閉部材2aと開閉部材3aとを接合させる。

接合させた開閉部材2a・3bの側面部を、開閉手段10により開閉するとともに、所定位置に切開して、ブリーフ片に包んでおむつAを完成する。

○発明の効果

本発明は、一片の開閉部材2a・3aと、おむつ本体とを、接着一体化し、所定寸法に切開することにより、ブリーフ片に包んでおむつを完成するのであるから、おむつ本体は従来のおむつ製造ラインを利用することができ、また開閉部材は

10—切開手段

出願人 株式会社 旭 光
代理人 特許士 佐藤 文雄

体で供給されることで、ベルト製造装置による本発明の製造方法とすることができ、おむつ製造コストでブリーフ片に包んでおむつを完成できる効果を実現するものである。

4. 図面の図を説明

第1図は本発明によるブリーフ片に包んでおむつの製造方法を示す説明図で、4図はおむつ本体の製造工程、5図は開閉部材との一体化工程を示すものである。

第2図はおむつ本体の製造工程、第3図は開閉部材および開閉部材の製造工程である。

第4図は本発明により製造されたブリーフ片に包んでおむつの製造工程、第5図は平面図、第6図は本発明のおむつの側面図である。

- 1—おむつ本体
- 2—開閉部材
- 3—開閉部材
- 7—おむつ本体供給手段
- 8—接着手段
- 9—おむつ手段